

Grouching and grazing on national grasslands

Author(s) :John G. Sidle

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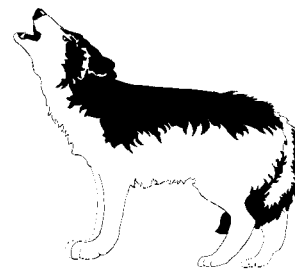
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In My Opinion: Grouching and grazing on national grasslands



John G. Sidle

You might think this is going to be another anti-grazing epistle and you have seen enough of them. But it's not. It's about the ponderous trials and tribulations of making even modest livestock adjustments for wildlife habitat management on federal lands, a daunting regulatory chore not faced by willing partners restoring wildlife habitat on private Great Plains grasslands. What does it take to change the extent of livestock grazing on a small tract of federal land to provide better nesting cover for prairie grouse species? Our system appears to require years of studies, wrangling discussions, lots of money, and multiple court decisions. That's what I am grouching about.

My observations and opinion center around plains sharp-tailed grouse (*Tympanuchus phasianellus jamesi*) and greater prairie chicken (*Tympanuchus cupido pinnatus*) habitat on Fort Pierre National Grassland, South Dakota. These species need substantial vegetation cover that is often removed by grazing livestock. We don't need to eliminate livestock. We just need fewer hooves out there but getting that done can be an extraordinary undertaking.

I recognize the role of grazing, even heavy grazing, on national grasslands. How can that be? Aren't all those lawsuits out west about getting cows off the public lands? In many areas of the west cows have negatively impacted wildlife species but on the Great Plains and elsewhere grazing can be important for many species (Samson and Knopf 1996, Donahue 2000). After all, there were once millions of bison (*Bison bison*) grazing prairie, trampling riparian areas, and creating a mosaic of varying grazing intensities. At one end of the spectrum, thriving colonies of black-tailed prairie dogs (*Cynomys ludovicianus*) and associated species such as mountain plover (*Charadrius*

montanus) and burrowing owl (*Athene cunicularia*) prefer grasses and forbs mowed to the ground. The endangered black-footed ferret (*Mustela nigripes*) lives only in prairie dog colonies. Further along the grazing spectrum many avian species such as prairie grouse require light to moderate grazing (Kantrud 1981, Kantrud and Kologiski 1982).

Fort Pierre National Grassland

Fort Pierre is 1 of 14 national grasslands in the Great Plains administered by the United States Department of Agriculture (USDA) Forest Service (Forest Service). The grassland includes about 47,000 ha of mixed-grass vegetation on a rolling hill landscape just west of the Missouri River near Pierre, South Dakota (Moravek 2001). Western wheat grass (*Pascopyrum smithii*) is the most prevalent grass species. Green needlegrass (*Nassella viridula*) and buffalo grass (*Buchloe dactyloides*) also grow on the deep clays of ridge tops and flats. Side-oats grama (*Bouteloua curtipendula*), big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparius*), and blue grama (*Bouteloua gracilis*) grow on more shallow, sloping clays. Woody vegetation growing along drainages includes cottonwood (*Populus deltoides*), wild plum (*Prunus americana*), willow (*Salix* sp.), chokecherry (*Prunus virginiana*), and western snowberry (*Symphoricarpos occidentalis*). Much flat or gently sloping private land adjacent to the federal land has been plowed to produce wheat, sunflowers, sorghum, corn, or alfalfa hay. Over 150 small ponds have been constructed in intermittent drainages for livestock watering. Indeed, much of the infrastructure and staff time on Fort Pierre supports the grazing program.

Fort Pierre is not a sacrosanct wildlife refuge but, because of modern environmental statutes, must maintain viable populations of species and provide habitat for hunted and non-hunted species. This contrasts with the past when wildlife considerations often were an afterthought (Catton and Mighetto 1998). Thirty-seven individuals graze their livestock on Fort Pierre. Thirty of those livestock permittees are wrapped into a single grazing association, the Central South Dakota Cooperative Grazing District. The District has a permit to graze a certain number of cattle animal-unit months (AUM: defined by the USDA Natural Resources Conservation Service as a 453 kg (1,000-pound) cow with a calf less than 6 months old.) at a variable fee determined annually by USDA (\$1.90 U.S./AUM in recent years).

The grazing permit conveys no right, title, or interest in the lands and resources of Fort Pierre. The permit is subject to modification according to changes in management needs (e.g., improving wildlife habitat) or resource conditions (e.g., drought). Nevertheless, it can be quite difficult for the Forest Service to modify a grazing permit given the agency's and District's long history and culture of grazing and the consolidated influence of a grazing district. This predicament is commonplace among federal, state, and tribal authorities throughout the western United States. Balancing commodity production, wildlife habitat, and recreation on public land is an art and science fraught with controversy (Moravek 2001).

Prairie grouse

Lewis and Clark observed prairie grouse within 80 km of Fort Pierre. Both grouse still have a widespread distribution throughout the Great Plains, although the greater prairie-chicken's distribution has diminished considerably (Schroeder and Robb 1993, Bachand 2001). The Forest Service designates the greater prairie-chicken as sensitive; its habitat and populations are declining and continued habitat loss could result in further population declines. Many states also strictly limit the harvest of this once popular game bird (Connelly et al. 1998, Fredrickson et al. 1999). The Forest Service also labels the greater prairie-chicken as a management indicator species to serve as a barometer for species viability and habitat conditions.

In the northern Great Plains, peak breeding by prairie grouse occurs in mid-April and nesting con-

Table 1. Habitat requirements for plains sharp-tailed grouse and greater prairie-chicken in the northern Great Plains.

Display grounds (peak breeding = mid-April)
Tops of low ridges or hills
Short and sparse vegetation
Nesting (April through June)
Tall and dense grassland cover
Residual cover from previous growing season
Height and density (structure) of vegetation an important component
Near (~ 2 km) display grounds
Brooding (June-mid September)
High plant species & structural diversity
Diverse & abundant forb/legume composition
Shade protection - shrub or herbaceous
Survival dependant on insect production
Foraging
Significant % forb/legume composition
High plant species diversity
Primarily vegetarian except during summer months
>40% insect diet - summer
Sharp-tailed grouse utilize shrubs - winter
Greater prairie-chicken utilize cultivated grain - winter
Roosting
Sharp-tailed grouse utilize slopes with high vegetative structure
Sharp-tailed grouse burrow into snow and sometimes utilize trees/shrubs
Greater prairie-chicken utilize areas with high vegetative structure

tinues through June. Short and sparse vegetation are preferred on display grounds but tall and dense grassland cover is required for nesting during April through June and the rest of the year (Prose 1985, 1987; Table 1). In South Dakota, the most important need of prairie grouse is protection of vigorous grasslands, rangeland, roadside cover, shoreline vegetation around stock dams, and woody draws from heavy cattle use (Fredrickson et al. 1999). The suitability of habitat is largely determined by the amount of residual vegetation cover remaining after livestock grazing (Rice and Carter 1982, Manske et al. 1988). Residual cover refers to the height and density of vegetation when measured in the fall after the grazing season has ended. Various grazing systems exist to maintain suitable prairie grouse cover (Table 2).

Managing Fort Pierre National Grassland

Fort Pierre is an important area on the northern plains for the conservation of prairie grouse. However, beginning in the early 1970s, the Forest

Table 2. Livestock grazing strategies for greater prairie-chicken and plains sharp-tailed grouse in the Great Plains.

Season-long grazing
Stock at light rates (e.g., 80% of Natural Resources Conservation Service stocking rates)
Uneven grazing distribution to provide areas of enhanced plant species composition and vegetation structure
Planned rotational grazing systems
Stock at light to moderate rates
Rest or lightly stock one or more pastures annually
Avoid multiple entries into individual pastures
Enhances re-growth
Provides for warm- and cool-season plant species
Provides deferment of grazing during nesting season in one or more pastures
Provides opportunity for variable stocking rates between pastures to enhance plant species composition and structural diversity
Dormant grazing season
Stock at light to moderate rates
Maintains or enhances range condition
Reduces impacts on native shrubs

Service began receiving an increasing number of complaints about inadequate levels of vegetation cover after livestock grazing. For the next 25 years, Fort Pierre slowly began to develop and implement grazing management strategies to improve prairie grouse habitat conditions.

The National Forest Management Act of 1976 requires new land and resource management plans for national grasslands every 10–15 years. The plan guides grassland management decisions such as the identification of suitable livestock grazing lands. The 1984 plan for Fort Pierre (USDA Forest Service 1984) emphasized wildlife habitat by altering grazing systems, season of use, and stocking levels. It required residual cover guidelines for prairie grouse by 1988. Fort Pierre authorized a grazing permit in 1985 at a stocking rate of 70,436 AUMs; however, the permit indicated that pending 1) range condition analyses, 2) the establishment of residual cover requirements, and 3) monitoring and evaluation, stocking levels could be revised. The language was clear but once a government agency hands out a grazing number, that number can be difficult to rescind. Permits are 10 years long and a permittee must own base property near Fort Pierre, so the pool of potential permittees is limited to a select few.

During 1985–1998, the impact of grazing on grouse habitat was studied extensively. Height and density of vegetation (grassland structure) were monitored through visual obstruction readings (Robel et al. 1970). Population trends of prairie chickens and sharp-tailed grouse were monitored on a 7,300-ha parcel of Fort Pierre. Within this area

stocking rates were reduced from 0.85 ha per AUM to 0.91 ha. In addition, a considerable portion was rested during 1988–2001. In the immediate surrounding area, stocking levels fell from 0.69 ha to 0.91 ha per AUM.

The Forest Service, after many years, decided the 1985 stocking level on Fort Pierre was not appropriate to satisfy the 1984 plan's requirements for grouse habitat. The agency prepared an environmental assessment that considered maximum grazing levels of 55,440, 45,211, 15,070, and 51,558 AUMs, as well as no grazing. In 1998 the agency decided on 51,558 AUMs. The 1985 stocking level of 70,436 AUMs had only been temporary, pending scientific analysis, and since 1989 the actual stocking rate had not risen above 52,400 AUMs.

The Grazing District argued that the Forest Service violated the National Environmental Policy Act because it failed to consider reasonable alternatives to reduced grazing levels and that methodologies for assessing grouse populations and range conditions were so unreliable as to make the choice of stocking levels arbitrary and capricious (United States District Court, District of South Dakota, Central Division, Civ. 99-3026; 2000). The District Court and later the United States Court of Appeals (Eighth Circuit No. 00-3567) simply decided that the Forest Service had acted reasonably in the management of wildlife habitat. Over 13 years of monitoring habitat conditions was not arbitrary and capricious.

The 2001 Forest Service plans for northern Great Plains national grasslands, a separate \$5-6 million effort addressing more than prairie grouse manage-

ment, continues improvements of prairie grouse habitat on Fort Pierre (USDA Forest Service 2001). Over a significant area, high, dense cover will be left after the grazing season. The grassland ecosystem will feature a shifting mosaic of disturbance processes over space and time (Fuhlendorf and Engle 2001, Samson et al. 2003, 2004). Vegetation composition objectives will be based on a mix of grass and grass-like species across most of Fort Pierre. Thirty to 50% of Fort Pierre will be in high structure and 30-50% in moderate structure.

Discussion

Prairie grouse, especially the greater prairie-chicken, have disappeared or declined due to heavy grazing and conversion of grasslands to cropland. Even on some national wildlife refuges in the Great Plains prairie-chickens have been extirpated. During 1942-1957 prairie-chicken numbers plummeted as grazing increased from 19,000 to 70,000 AUMs and the hayed acreage increased from 3,156 to 10,500 ha on 13 national wildlife refuges (L. McDaniel, Valentine National Wildlife Refuge, personal communication). At Valentine National Wildlife Refuge, Nebraska, booming male prairie-chicken numbers climbed from a few dozen to over 400 as AUMs fell from over 50,000 to about 10,000 during 1956-1998. These examples from nearby federal lands could have easily and quickly supported a Forest Service decision to change stocking levels.

The monitoring strategies and protocols developed to provide the scientific basis for this decision-making process certainly were the successful products of a large number of scientists and specialists from numerous agencies, universities, and organizations. The science and information generated has withstood the rigors of scientific review, administrative appeals by the grazing district, and judgments by 2 federal courts. The administrative record is quite extensive but is it really necessary? (Figure 1).

Be mindful that prairie grouse are not obscure species for which little is known, although we can always learn more (Aldridge et al. 2004, Applegate et al. 2004). Prairie grouse have been studied for decades and a small library of literature exists on their habitat requirements. Many state wildlife agencies have full-time staff devoted to the study and management of prairie grouse. The same cannot be said for most threatened, endangered, and

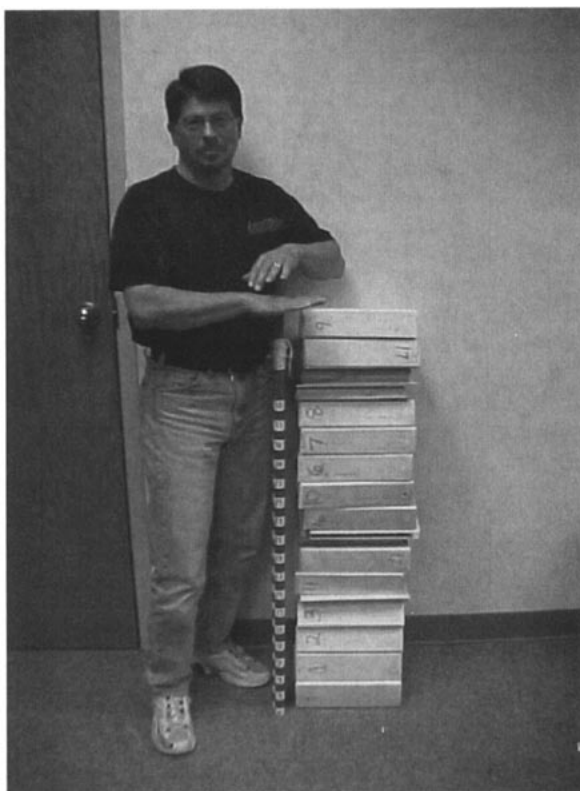


Figure 1. The 17-volume administrative record (1.1 m high) assembled to document the process of reducing livestock stocking levels on the Fort Pierre National Grassland, South Dakota.

sensitive species and other species of concern. Even in the absence of the data collected at Fort Pierre, it is likely that the Forest Service could have substantiated livestock adjustments based upon existing literature, a modicum of field work, and advice from professional entities such as the Prairie Grouse Technical Council.

It sounds appropriate to have good science and long-term information to support fair, responsive, and defensible decisions, but was the extensive analysis at Fort Pierre really necessary? Some called for more studies in order to delay decisions and to mollify plaintiffs. Wildlife management biologists became paralegals collecting more and more data under an unfounded notion that the Forest Service might lose in court. However, it is fundamentally difficult for the United States to lose a case based upon a claim of arbitrary and capricious decision-making related to science. The courts are reluctant to replace their opinion with that of the agency except in the most egregious circumstances. They are not going to replace a government grouse habitat model with one of their own nor are they going

to declare a grouse habitat model champion between the plaintiff and defendant.

The courts are looking for inappropriate behavior and rule accordingly. The Court of Appeals (Eighth Circuit No. 00-3567) stated in the Fort Pierre case: "A decision is arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. Even if the agency's data is flawed, if the agency has relied on a number of findings and only some are erroneous, we must reverse and remand only if there is a significant chance that but for the errors the agency might have reached a different result."

A lot of money was spent to make a rather fundamental decision about prairie grouse management at Fort Pierre. The people grazing cattle didn't think it was too much because they put up much of the estimated \$1.4 million in litigation and associated costs. Instead of litigation, I might have purchased an extra ranch and grazed there or launched a voluntary incentive-based grouse program on private lands. Some people think the system has to be streamlined but the system is vastly better than the old way, where little concern was given to species. Although expensive, the process is slow, but democratic, giving frequent chances for appeals. People can air their concerns. As administrations change, the system hopefully prevents management emphasis from springing quickly back the opposite way. Still, I grouse about the resources and the time expended on this simple prairie grouse matter given the current plight of prairie grouse (Silvy and Hagen 2004). Despite great federal court victories, I feel a bit sullen because of the largesse surrounding the Fort Pierre prairie grouse decision making process. I wonder what our conservation colleagues in poor countries would think if they read my opinion.

The Fort Pierre case should give great confidence to decision-makers in the Forest Service. However, despite this experience, it is likely that the call for more studies and analyses will delay other wildlife management decisions on other public lands. Wildlife must still prove itself to an unspecified degree beyond the information already existing in the literature.

Acknowledgments. I acknowledge the right of the public to appeal federal land management decisions. I acknowledge the requirement of basing decisions on good scientific information. However, I am frustrated with costly and interminable delays in wildlife management decisions for species whose habitat requirements already are well known.

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- John G. Sidle, United States Department of Agriculture, Forest Service, Great Plains National Grasslands, 125 N Main Street, Chadron, NE 69337, USA; jsidle@fs.fed.us.

John G. Sidle is the threatened, endangered, and sensitive species coordinator for Great Plains national grasslands. He received his B.S. and M.S. degrees in wildlife biology from Oregon State University and the University of Minnesota, respectively, served in the Peace Corps, and has worked in various positions in the Great Plains with the United States Fish and Wildlife Service and Forest Service. His current responsibilities revolve around black-tailed prairie dogs, burrowing owls, and other grassland birds. He is a certified wildlife biologist and seeks stronger ties with Latin America to better understand what is happening to grassland birds on the wintering grounds.

